

WHAT IS CLAIMED

- 1 1. A method for applying a patch to a computer system, wherein the patch
2 includes content to add to the computer, comprising:
3 determining at least one of installed hardware and software components on the
4 computer;
5 generating a computer object including configuration information on the determined
6 installed components;
7 providing at least one patch including content to add to the computer, wherein each
8 patch is capable of being associated with at least one realization, wherein each realization
9 defines a state of the computer;
10 for each realization, determining from the configuration information in the computer
11 object whether the state defined by the realization exists in the computer;
12 writing data to the computer object indicating whether the state defined by the
13 realization exists on the computer; and
14 using the computer object to determine whether each patch is compatible with the
15 installed components of the computer.
- 1 2. The method of claim 1, wherein the patch content to add to the computer is
2 capable of comprising one of: a new program; an upgrade to an installed program; a fix to an
3 installed program; and documentation.
- 1 3. The method of claim 1, wherein one realization is capable of being dependent
2 on another realization in the computer object, further comprising:
3 determining whether the realization is dependent on at least one base realization; and
4 if the realization is dependent on at least one base realization, performing:

1 7. The method of claim 1, wherein each patch is further associated with a patch
2 expression that is capable of processing the computer object to determine whether to add the
3 content from the patch onto the computer.

1 8. The method of claim 1, further comprising downloading one or more realization
2 detectors, wherein each realization detector is used to check at least one realization, and
3 wherein each realization detector includes detector code to determine whether states defined by
4 realizations exist on the computer and to write data to the computer object concerning the
5 existence of the determined states.

1 9. The method of claim 1, further comprising:
2 downloading a plurality of patches to the computer, each including content to add to the
3 computer, wherein the steps of executing the realization routine, writing data to the computer
4 object, and using the computer object to determine whether the patch is compatible with the
5 installed components of the computer is performed on the computer.

1 10. The method of claim 9, further comprising:
2 generating a list of all patches determined to be compatible with the installed
3 components of the computer; and
4 rendering the list of patches on an output device to enable a user to select the content of
5 one or more of the patches on the list to add to the computer.

1 11. The method of claim 1, further comprising:
2 maintaining, at a network administrator system, a plurality of computer objects
3 associated with a plurality of computers on a network, wherein each computer object includes
4 the configuration information on the determined installed components of one computer on the
5 network, and wherein the steps of determining whether the state defined by the realization exists
6 on the computer, writing data to the computer object, and using the computer object to
7 determine whether the patch is compatible with the installed components of the computer on the
8 network is performed for computer objects on the network administrator system.

1 12. The method of claim 11, further comprising:
2 maintaining a plurality of patches at the network administrator system, wherein
3 determining the states defined by the realizations, writing data to the computer object, and using
4 the computer objects to determine whether the patch is compatible with the installed
5 components of the computers on the network is performed for each patch available to the
6 network administrator system.

1 13. The method of claim 12, further comprising:
2 generating a list of all patches determined to be compatible with the installed
3 components of the computers on the network; and
4 rendering the list of patches on an output device to enable a user of the network
5 administrator system to select the code of one or more of the patches on the list to install on one
6 or more of the computers in the network.

1 14. The method of claim 1, wherein the content comprises a fix, and wherein the
2 state defined by the realization is capable of indicating whether the computer is susceptible to a
3 bug corrected by the fix.

1 15. The method of claim 1, wherein determining the at least one of installed
2 hardware and software components comprises:
3 executing a detector program on the computer to process files in the computer to
4 determined installed hardware and software components on the computer.

1 16. The method of claim 15, wherein determining the at least one of installed
2 hardware and software components comprises:

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3 receiving user input indicating installed hardware and software components on the
4 computer.

1 17. The method of claim 16, wherein the user input is received by:
2 displaying a user interface presenting user selectable software and hardware
3 components; and
4 receiving user selection of software and hardware components from the displayed user
5 interface, wherein the received user input indicating the installed hardware and software
6 components comprises the components selected from the user interface.

1 18. The method of claim 1, wherein reading and writing performed as part of
2 adding content to the computer is restricted to the computer object on the computer.

1 19. A system for applying a patch, wherein the patch includes content to add,
2 comprising:
3 means for determining at least one of installed hardware and software components on
4 the computer;
5 means for generating a computer object including configuration information on the
6 determined installed components;
7 means for providing at least one patch including content to add to the computer,
8 wherein each patch is capable of being associated with at least one realization, wherein each
9 realization defines a state of the computer;
10 means for determining from the configuration information in the computer object for
11 each realization whether the state defined by the realization exists in the computer;
12 means for writing data to the computer object indicating whether the state defined by
13 the realization exists on the computer; and

14 means for using the computer object to determine whether each patch is compatible
15 with the installed components of the computer.

1 20. The system of claim 19, wherein the patch content to add to the computer is
2 capable of comprising one of: a new program; an upgrade to an installed program; a fix to an
3 installed program; and documentation.

1 21. The system of claim 19, wherein one realization is capable of being dependent
2 on another realization in the computer object, further comprising:

3 means for determining whether the realization is dependent on at least one base
4 realization; and

5 means for performing, if the realization is dependent on at least one base realization:

6 (i) determining whether the computer object includes information on the base
7 realizations; and

8 (ii) if the computer object does not include information on the base realizations,
9 then throwing an exception.

1 22. The system of claim 21, further comprising:

2 means for preventing each patch associated with at least one realization dependent from
3 the base realization not written to the computer object from being installed in response to
4 throwing the exception.

1 23. The system of claim 19, wherein the means for writing data to the computer
2 object indicating that the state exists further performs:

3 indicating in the computer object that the state defined by the realization exists in the
4 computer if the state exists on the computer; and

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1 28. The system of claim 27, further comprising:
2 means for generating a list of all patches determined to be compatible with the installed
3 components of the computer; and

1 32. The system of claim 19, wherein the content comprises a fix, and wherein the
2 state defined by the realization is capable of indicating whether the computer is susceptible to a
3 bug corrected by the fix.

1 33. The system of claim 19, wherein the means for determining the at least one of
2 installed hardware and software components performs:
3 executing a detector program on the computer to process files in the computer to
4 determined installed hardware and software components on the computer.

1 34. The system of claim 33, wherein the means for determining the at least one of
2 installed hardware and software components performs:
3 receiving user input indicating installed hardware and software components on the
4 computer.

1 35. The system of claim 34, further comprising:
2 means for displaying a user interface presenting user selectable software and hardware
3 components; and
4 means for receiving user selection of software and hardware components from the
5 displayed user interface, wherein the received user input indicating the installed hardware and
6 software components comprises the components selected from the user interface.

1 36. The system of claim 19, wherein the means for reading and writing performed
2 as part of adding content to the computer is restricted to the computer object on the computer.

1 37. An article of manufacture for applying a patch to a computer system, wherein
2 the patch includes content to add to the computer, by:
3 determining at least one of installed hardware and software components on the
4 computer;
5 generating a computer object including configuration information on the determined
6 installed components;

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7 providing at least one patch including content to add to the computer, wherein each
8 patch is capable of being associated with at least one realization, wherein each realization
9 defines a state of the computer;
10 for each realization, determining from the configuration information in the computer
11 object whether the state defined by the realization exists in the computer;
12 writing data to the computer object indicating whether the state defined by the
13 realization exists on the computer; and
14 using the computer object to determine whether each patch is compatible with the
15 installed components of the computer.

1 38. The article of manufacture of claim 37, wherein the patch content to add to the
2 computer is capable of comprising one of: a new program; an upgrade to an installed program;
3 a fix to an installed program; and documentation.

1 39. The article of manufacture of claim 37, wherein one realization is capable of
2 being dependent on another realization in the computer object, further comprising:
3 determining whether the realization is dependent on at least one base realization; and
4 if the realization is dependent on at least one base realization, performing:
5 (i) determining whether the computer object includes information on the base
6 realizations; and
7 (ii) if the computer object does not include information on the base realizations,
8 then throwing an exception.

1 40. The article of manufacture of claim 39, further comprising:
2 in response to throwing the exception, preventing each patch associated with at least
3 one realization dependent from the base realization not written to the computer object from
4 being installed.

1 41. The article of manufacture of claim 37, wherein writing data to the computer
2 object indicating that the state exists comprises:
3 indicating in the computer object that the state defined by the realization exists in the
4 computer if the state exists on the computer; and
5 indicating in the computer object that the state defined by the realization does not exist
6 on the computer if the state does not exist on the computer.

1 42. The article of manufacture of claim 37, wherein determining from the computer
2 object whether the state exists on the computer includes determining whether information on
3 one previously considered realization is written to the computer object.

1 43. The article of manufacture of claim 37, wherein each patch is further associated
2 with a patch expression that is capable of processing the computer object to determine whether
3 to add the content from the patch onto the computer.

1 44. The article of manufacture of claim 37, further comprising downloading one or
2 more realization detectors, wherein each realization detector is used to check at least one
3 realization, and wherein each realization detector includes detector code to determine whether
4 states defined by realization exist on the computer and to write data to the computer object
5 concerning the existence of the determined states.

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1 48. The article of manufacture of claim 47, further comprising:
2 maintaining a plurality of patches at the network administrator system, wherein
3 determining the states defined by the realizations, writing data to the computer object, and using
4 the computer objects to determine whether the patch is compatible with the installed

1 52. The article of manufacture of claim 51, wherein determining the at least one of
2 installed hardware and software components comprises:
3 receiving user input indicating installed hardware and software components on the
4 computer.

1 56. The computer readable medium of claim 55, further comprising:
2 a patch expression set including code that when executed processes the computer
3 object to determine whether to add the content from the patch onto the computer.

1 58. The computer readable medium of claim 55, further comprising:
2 a plurality of computer objects associated with a plurality of computers on a network,
3 wherein each computer object includes the configuration information on the determined installed
4 components of one computer on the network, and wherein the determination of whether the
5 state defined by the realization exists on the computer, writing data to the computer object, and
6 using the computer object to determine whether the patch is compatible with the installed
7 components of the computer on the network is performed for computer objects on the network
8 administrator system.